



# UNITED STATES PATENT AND TRADEMARK OFFICE

206

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,236	12/01/2003	Andrew J. Curello	BIC-022	1939
29626	7590	07/28/2005		
THE H.T. THAN LAW GROUP 1010 WISCONSIN AVENUE NW SUITE 580 WASHINGTON, DC 20007			EXAMINER ROGERS, DAVID A	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/725,236

Applicant(s)

CURELLO ET AL.

Examiner

David A. Rogers

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment Filed 30 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 and 28-47 is/are pending in the application.
- 4a) Of the above claim(s) 3-11, 37, 38, 41, 42, 44 and 45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 28-36, 39, 40, 43, 46 and 47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments with respect to claims 1, 2, 28-36, 39, 40, 43, 46, and 47 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 28-31, 36, 39, 40, 43, 46, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Application Publication 2003/0129464 to Becerra *et al.* in view of United States Patent 6,641,240 to Hsu *et al.*

Becerra *et al.* teaches several different embodiments of fuel containers (reference items 202, 302, 502a, 502b, 602, and 702) for cooperation with fuel cells (reference item 3) for electronic devices. The fuel containers shown include a spring/plate combination (figures 2, 5A, 5B, and 7) and a foam/plate combination (figure 3). Becerra *et al.* teaches that it is desirable to know the fuel volume remaining in the fuel container (see figure 6). Becerra *et al.* does not teach a gauge having a moving member and a static member.

Hsu *et al.* teaches a container (reference item 100) having a bladder (reference item 115). Attached to the container and bladder is a capacitive sensor (reference item 210) having a moving plate member (reference item 210a) and a static plate member (reference item 210b). As the bladder expands, i.e., as the liquid in the tank is depleted, the movable plate approaches the static plate. The change in capacitance is monitored via a detecting circuit (reference item 250) and is related to the amount of liquid remaining in the container.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Becerra *et al.* with the teachings of Hsu *et al.* in order to provide a gauge for determining the amount of fuel remaining in a fuel container.

In Becerra *et al.* the visual ascertainment of the fuel level, as seen in figure 6, may not always be practical since the fuel container may be enclosed within the electronic device, or the fuel itself may be clear and not easily viewable through a slot. Therefore, it would be obvious to determine the fuel remaining and display it via some other means, such as the display of the electronic device (phone, camera, computer, etc.). Hsu *et al.* teaches that, for enclosed containers with bags, a sensor can be used to measure the amount of remaining liquid. Hsu *et al.* teaches that this device produces an accurate measurement of the amount of liquid remaining.

With regard to claims 28, 29, and 47 the location of the electrical circuit does not change the functionality of the sensors. Having the circuit located in an electronic device or in the fuel cell would be expected since Becerra *et al.* teaches fuel cells for portable electronic equipment such as cell phones and laptops (handheld and portable). See also MPEP 2144.04 citing *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

With regard to claims 39, 40, and 46 Hsu *et al.* teaches a movable member adjacent to, i.e., on, the bladder. In combination with Becerra *et al.* the movable member would also be on the bladder of the fuel container, which is a fuel supply.

With regard to claim 43 Hsu *et al.* teaches a static member on the vessel. In combination with Becerra *et al.* the static member would be on the fuel cell or in the electronic equipment such that it can detect the movable member.

4. Claims 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra *et al.* in view of Hsu *et al.* as applied to claim 1 above, and further in view of United States Patent Application Publication 2003/0006245 to Rodgers, and United States Patent 5,816,224 to Welsh *et al.*

Becerra *et al.* in view of Hsu *et al.* provides a gauge for determining the amount of fuel remaining in a fuel container in which a capacitive sensor is used as the gauge. Becerra *et al.* in view of Hsu *et al.* does not teach the use of an oscillating magnetic field sensor (Hall sensor) for determining the remaining fuel.

Rodgers teaches a device (reference item 10) having an outer vessel (reference item 12) with a liquid (reference item 14) and a float (reference item 16). The float has a second liquid (reference item 18) and a sensed member (reference item 24). The sensed member is taught as being a magnet. The outer vessel further comprises a sensor (reference item 26) in the form of a Hall effect sensor, As seen in figure 1 the magnet moves up and down in response to the amount of second liquid in the float. The Hall effect sensor is static. Rodgers teaches that “[t]he amount of fluid contained in the inner vessel [float] is determined based upon the weight or buoyancy of the inner vessel within the outer vessel. The apparatus utilizes a sensing mechanism to determine the weight of the vessel.” See column 1, lines 10-15.

From Welsh *et al.* it is taught that a float (reference item 112) moves in response to the amount of liquid in a body (reference item 110). It is also taught that capacitance sensors, Hall effect sensors, or even optical sensors are interchangeable. See column 17, lines 15-24.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Becerra *et al.* in view of Hsu *et al.* with the teachings of Rodgers and Welsh *et al.* to provide a Hall effect sensor to determine the amount of remaining fuel in a fuel container as part of a fuel cell.

From Hsu *et al.* it is known to use a capacitive sensor to determine the amount of remaining liquid. From Rodgers it is known to use a Hall effect

sensor and magnet to determine the amount of fluid. From Welsh *et al.* it is known that capacitive sensors and Hall effect sensors are interchangeable.

In this case the magnet (reference item 24) of Rodgers would replace the movable plate (reference item 210a) of Hsu *et al.* The Hall effect sensor (reference item 26) of Rodgers would replace the static plate member (reference item 210b) of Hsu *et al.*

### **Conclusion**

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

United States Patent 4,447,743 to Bean *et al.* teaches a magnetic float (reference item 12) in a vessel (reference item 10). The float moves in response to the amount of fluid (reference item 14) in the vessel. An oscillating sensor is utilized to detect the position of the float in the fluid.

United States Patent 5,859,365 to Kataoka *et al.* teaches a bladder (reference item 5) containing fuel (reference item F). As seen in figure 9 there is a reset switch (reference item 63). The reset switch can be a magnetic proximity switch comprising a magnet and a sensor. The sensor can be a Hall sensor or a magnetic coil.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Rogers whose telephone number is (571) 272-2205. The examiner can normally be reached on Monday - Friday (0730 - 1600).

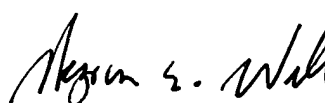
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.



Art Unit: 2856

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
dar  
23 July 2005

  
HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800